

Wunderlich (F. W.)

Infection by Catgut Sutures.

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INFECTION BY CATGUT SUTURES.*

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ONE of the most important elements of surgical practice instituted by Mr. Lister is the reintroduction of the catgut ligature. He considers it of the utmost importance that the catgut should be rightly prepared. When properly prepared, it seems to him to fulfill all the conditions of a perfect hæmostatic, combining the absolute security and universal applicability of the ligature with virtual absence of any foreign body from the wound.

Owing to this, the surgeon is enabled to obtain primary union, after many operations, by the use of catgut ligatures, when it would not be possible to obtain the same result after using silk ligatures, as they would have to come away with more or less ulceration and suppuration.

If a ligature has to be applied in the continuity of a vessel, properly selected and prepared catgut is certainly much superior to a silk ligature, because it does not interfere with immediate closure of the wound.

Catgut is superior to silk for "buried sutures"; a series of sutures applied to the deeper parts of extensive wounds to secure perfect apposition and arrest hæmorrhage, the

* Read before the Medical Society of the County of Kings, January 19, 1886.

catgut sutures being absorbed during the process of healing, while silk sutures are liable to give rise to trouble for months before they are discharged.

The use of catgut for ligatures and sutures has by no means been uniformly successful. Catgut prepared with chromic acid was frequently rigid and wire-like—"over-prepared," as Mr. Lister calls it. It would invariably cause irritation, and be discharged by ulceration and suppuration.

Much more dangerous is the opposite condition of catgut. Mr. Lister call sit "under-prepared." Such catgut softens too soon, and the knot slips or the entire cord dissolves.

Many surgeons have recorded observations of this kind, and frequently it has been the cause of serious trouble and death.

There is another danger inherent to the use of catgut which has not hitherto received the attention it deserves. I will give the history of a case which will throw some light on this subject:

CASE. *Carcinoma of the Left Breast; Amputation.*—Mrs. A. McD., aged thirty-eight, native of Ireland, twenty-six years in the United States. Noticed a small tumor in left breast about five years ago; it gradually grew larger. One year ago first had pain in tumor; admitted to St. Peter's Hospital January 12, 1885. Carcinoma of left breast; two glands enlarged near the margin of the axilla; axillary glands high up not involved. Breast amputated and glands removed January 14, 1885. An opening was made at the lowest point of the wound, and the subcutaneous fat cut from margins of this opening to secure free drainage. The greater part of the wound was closed with sutures of black, iron-dyed silk, and, for comparison, the inner part of the wound with eight catgut sutures. A cushion of wood-wool was applied; several layers of cotton over it and around the edges to exert equable pressure by the bandage. January 16th the dressing was removed, because the patient complained of pain in the wound. The portion of the wound

sutured with silk looked well; but around each catgut suture the skin was red, and the epidermis was raised to a small vesicle filled with purulent serum. An attempt was made to remove the catgut sutures, but they tore, and the part imbedded in the tissues remained. Apparently there was union along the entire line of incision. During the following days the ulceration extended rapidly, eccentrically from each catgut suture, the epidermis being raised first by purulent serum, and the skin destroyed subsequently. Chloride-of-zinc solution was applied, but the destructive action continued until a series of conical depressions was formed, which finally blended together and led to destruction of the greater portion of the flaps where they had been sutured with catgut.

The portion of the wound sutured with silk healed by first intention.

After elimination of the infective material, the portion sutured with catgut healed slowly by granulation. The patient was discharged March 21, 1885. Wound entirely closed.

The catgut was manufactured in England, prepared by Mr. Lister's method, and kept in carbolized oil. It was furnished by a reliable New York firm.

If the entire wound had been sutured with silk, primary union would have taken place, and the patient could have been discharged in ten or twelve days.

It is certain that the catgut contained infectious material, and was the only cause of the destruction of a portion of the flaps.

If this catgut had been used for tying a vessel or a pedicle after ovariectomy, if it had been used to unite the edges of the peritonæum after laparotomy, or if it had been used to occlude the opening of a hernial sac after kelotomy, it would have caused septicæmia and death, and nobody would have suspected the source of infection.

Professor Zweifel,* of Erlangen, has reported a case in

* "Centralblatt f. Gynäkologie," 1879, No. 12.

which catgut was used to occlude a small fistula. Pyæmia developed and the patient died. No other source of infection could be discovered. The catgut was examined and found to be permeated by bacteria, which must have caused infection.

The difficulty with catgut is the uncertainty regarding the quality of each particular sample. Each specimen should be tested before use by soaking it in blood-serum.

Pathogenic bacilli and spores, such as those of anthrax, if present in catgut, can not be destroyed by any of the methods of preparing catgut in use at the present time.



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